

f6 Perissodactyls < Gk. *perissos* odd numbered, *daktylos* toes >

Hoofed mammals are called *ungulates*. Land dwelling ungulates today have herbivore dentition. However, whales (*see* Topic f10) evolved during the Eocene from extinct Mesonychid ungulates with carnivore dentition. Perissodactyls are odd-toed ungulates.¹ Living lineages of these are horses (*see* Topic f7), tapirs, and rhinoceroses. Extinct lineages of these are chalicotheres and titanotheres.

Tapirs survive as successful browsers in South America and in Malaya. Of the perissodactyls, the tapirs are the least evolved. As such, except for their prominent proboscis, the tapirs are living examples of what horses looked like in the Eocene. Evolution's lottery, only, can account for the conservative evolution of the tapirs by contrast to the flamboyant evolution of the horses.

Rhinoceros browsers live today in the African and Asian bush, and in Africa is the white (corruption of Afrikaans *wyd*, wide) rhino with a smooching soft-muzzled wide mouth specialized for grazing grass. During the Pleistocene, the range of rhinoceroses was greater. Those that lived in northern latitudes did not migrate when climates chilled in the Pleistocene, but adapted by becoming woolly. If the once existence of woolly rhinoceroses seems at all extraordinary then remember that rhinoceros horn is fused hair (of finger-nail composition).

The chalicotheres (**Footnote f6.1**), as can be reconstructed from their fossil bones, are bizarre to our eyes. They had the head of a horse on a body of a camel—which compounds the tired quip that a camel is a horse designed by a committee²—and their toes had claws and not hooves. These creatures, possibly designed to root or grub for riparian fodder, became extinct in the late Pliocene. Until then, they had expanded their range to Europe and Asia from North America where in the late Eocene they had debuted.

The titanotheres went extinct as part of the end-Eocene mass extinction of archaic mammals. Until then they were the most successful of the perissodactyls and ranged North American, Europe, and Asia. Their evolutionary trend was to large size but, unlike the horses, their teeth remained low-crowned and perforce they remained exclusively browsers. Titanotheres appeared in North America in the early Eocene.

Reprise Extant land perissodactyls radiated from North America, which is where these animals evolved during the Paleogene. Evolution in their lineages followed a common pattern of toe reduction and elimination. The middle toe is retained. Early perissodactyls were five toed. 

Footnote f6.1 The history of the discovery of the chalicotheres In 1913 W. B. Scott wrote:³

The tale [that follows] ... ought to put an end to the foolish notion that the paleontologist can reconstruct a lost animal from a single bone or tooth, but it will not. The idea [famously originated by Cuvier] has been exposed and confuted many times, but it is immortal and invulnerable and no doubt will long continue to flourish.

In 1823 Cuvier assigned certain foot-bones, found in the Miocene of Sansan, to the scaly anteaters, or pangolins, not giving a technical name, but calling the creature “le pangolin gigantesque,” and in 1838 Lartet named it †*Macrotherium*. In 1833 [Johann Jakob] Kaup [1803-1873] described a skull, from the Pliocene of Eppelsheim in the Mainz basin, naming it †*Chalicotherium* and assigning it to the group which was subsequently called Perissodactyla. In 1863 [Jean Albert] Gaudry [1827-1908] discovered in the lower Pliocene of Pikermi, near Athens, quite complete fore- and hind-feet of the †*Macrotherium* type, but of a much larger animal than and this he named †*Ancylotherium* [⁴].

There the matter rested until 1887, when Forsyth Major, collecting in the Greek island of Samos, became convinced that †*Chalicotherium* and †*Ancylotherium* were the same animal, a conclusion which, to most people, seemed preposterous. It was, however, speedily confirmed by Filhol, who found at Sansan an entire skeleton with all the bones in their natural connections; this skeleton unites the feet of †*Macrotherium* with a skull and teeth which are of the †*Chalicotherium* type.